YAMAHA KX-W952 RS

Natural Sound Stereo Cassette Deck

Platine à cassette stéréo de la série "Natural Sound"

"Natural Sound" Stereo-Kassettengerät

Natural Sound stereokassettdäck

Registratore a cassette stereo a suono naturale

OWNER'S MANUAL
MODE D'EMPLOI
BEDIENUNGSANLEITUNG
BRUKSANVISNING
MANUALE DELL'UTENTE

Thank you for purchasing the YAMAHA KX-W952 stereo cassette deck.

CAUTION: READ THIS BEFORE OPERATING YOUR UNIT.

1. This unit is a sophisticated stereo cassette deck. To ensure proper operation for the best possible performance, please read this manual carefully.
2. Choose the installation location of your unit carefully. Avoid placing it in direct sunlight or close to source of heat. Also avoid locations subject to vibration and excessive dust, heat, cold or moisture. Keep it away from sources of hum such as transformers or motors.
3. Do not open the cabinet as this may result in damage to the deck or electrical shock. If a foreign object should get into the deck, contact your local dealer.
4. When removing the power plug from the wall outlet, always pull directly on the plug; never pull the cord itself.
5. Do not apply excessive force when operating switches and knobs.
6. When moving the deck, be sure to first pull out the power plug and remove all cords connecting the deck to other equipment.
7. Do not attempt to clean this unit with chemical solvents as this may damage the finish. Use a clean, dry cloth.
8. Never allow metallic items (e.g. screwdrivers, tools, etc.) to come near the record/playback head assembly. Doing so may not only scratch or damage the head's mirror-smooth finish, it may also change the magnetic characteristics of the heads, causing a deterioration in reproduction quality.
9. Although the record/playback head used in this unit is a high quality head with outstanding reproduction characteristics, it can become dirty through the use of old tapes or from dust accumulation over time. This can have a serious effect on reproduction quality. Clean the heads regularly with one of the commonly available head cleaners or with cleaning solutions as explained later in this manual.
10. Be sure to read the "Troubleshooting" section of this manual for advice on common operating errors before concluding that your unit is faulty.
11. Keep this manual in a safe place for future reference.
12. **Voltage Selector (general model only)**
    The voltage selector on the rear panel of this unit must be set for your local mains voltage BEFORE plugging in the AC mains supply.

Please check the copyright laws in your country to record from records, compact discs, radio, etc. Recording of copyright material may infringe copyright laws.

WARNING
TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

Special Instructions for U.K. Model

IMPORTANT
The wires in the mains lead are coloured in accordance with the following code:

Blue: NEUTRAL
Brown: LIVE

As the colours of the wires in the mains lead of this apparatus may not correspond with the coloured markings indentifying the terminals in your plug, proceed as follows. The wire which is coloured BLUE must be connected the terminal which is marked with the letter N or coloured BLACK. The wire which is coloured BROWN must be connected to the terminals which is marked with the letter L or coloured RED. Making sure that neither core is connected to the earth terminal of the three pin plug.

Special Instructions for Canada Model

THIS DIGITAL APPARATUS DOES NOT EXCEED THE "CLASS B" LIMITS FOR RADIO NOISE EMISSIONS FROM DIGITAL APPARATUS SET OUT IN THE RADIO INTERFERENCE REGULATION OF THE CANADIAN DEPARTMENT OF COMMUNICATIONS.

TO PREVENT ELECTRIC SHOCK DO NOT USE THIS (POLARIZED) PLUG WITH AN EXTENSION CORD, RECEPTACLE OR OTHER OUTLET UNLESS THE BLADES CAN BE FULLY INSERTED TO PREVENT BLADE EXPOSURE.

This product complies with the radio frequency interference requirements of the Council Directive 82/499/EEC and/or 87/308/EEC.

Cet appareil est conforme aux prescriptions de la directive communautaire 87/308/CEE.

Diese Geräte entsprechen der EG-Richtlinie 82/499/EWG und/oder 87/308/EWG.

Dette apparat overholder det gaeldende EF-direktiv vedrørende radiostøj.

Questo apparecchio è conforme al D.M.13 aprile 1989 (Direttiva CEE/87/308) sulla soppressione dei radiodisturbi.

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ENGLISH

FEATURES

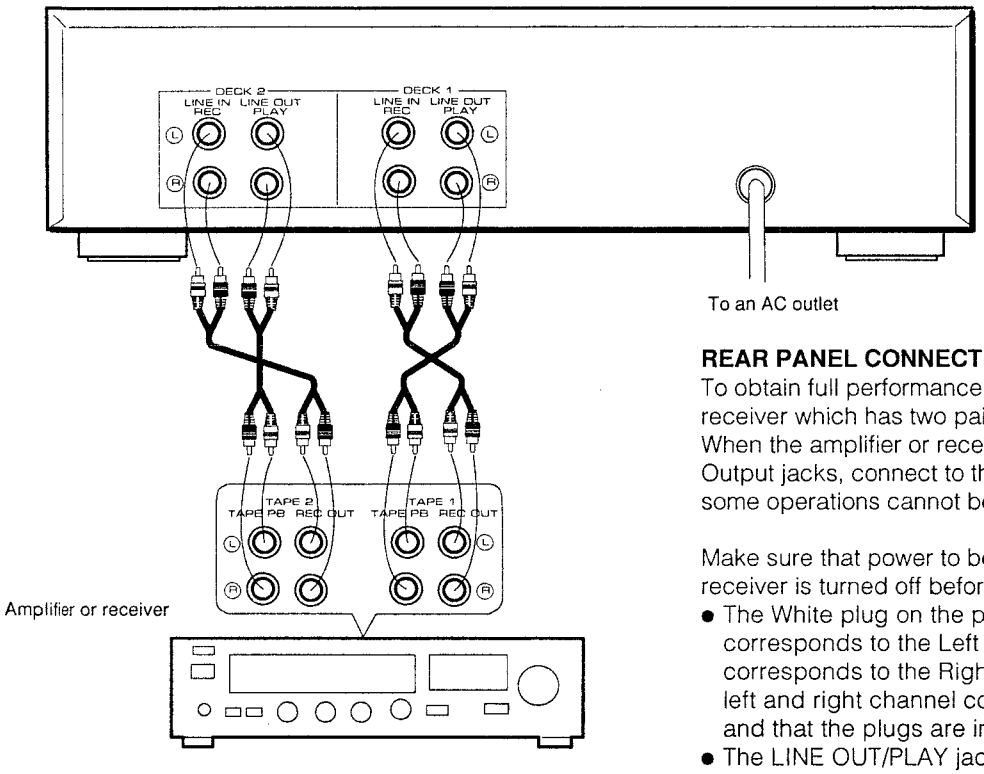
- Completely Individual Twin Deck Design
- 12-Layer Amorphous Recording/Play Heads in Both Decks
- High Quality Sound Design Cassette Stabilizer
- Dolby HX Pro Dynamic Bias Servo
- Dolby B/C Noise Reduction
- 210 kHz High Recording Bias prevents cross modulation beat distortion that can occur between the recording bias and the recording signal's high frequency content.
- Play Trim Controls on Both Decks for Improved Playback Compatibility with Other Decks
- Auto Tape Selector

- Relay Playback from DECK 1 to DECK 2
- Program Playback on Both Decks
- Selection Search/Direct Selection Search/Intro Scan
- Dual Recording allows you to make the same recording on both decks simultaneously.
- Relay Recording from DECK 1 to DECK 2
- Simultaneous Independent Recording allows you to record two different sources at the same time.
- Recording Level/Balance Controls on Both Decks
- Recording Mute Function
- Rec Return Operation
- Timer Recording/Playback
- Various Dubbing Methods:
  Full Auto Dubbing
  Manual Dubbing
  Skip Dubbing
  Program Dubbing
- Dubbing Level Control
- Quick Auto Reverse Function

- Twin Displays - Independent, Separate Displays
- Peak Level Meters with Peak Hold Function
- Linear Time Counter
- Remaining Time Display Function

- Wireless Remote Control Transmitter
- RS Integrated System Remote Control Compatibility

CONNECTIONS



REAR PANEL CONNECTIONS

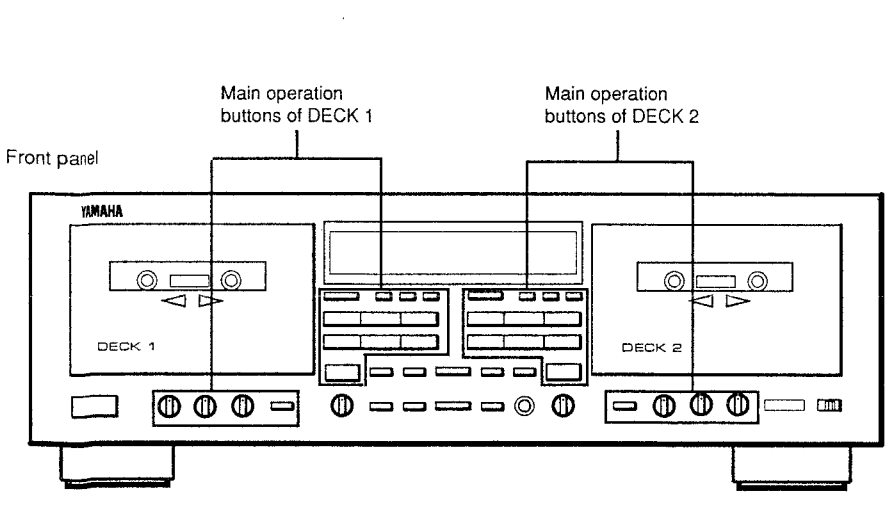
To obtain full performance of this unit, use an amplifier or receiver which has two pairs of Tape Input/Output jacks. When the amplifier or receiver has only 1 pair of Tape Input/Output jacks, connect to the DECK 1 jacks. In this case, some operations cannot be carried out properly.

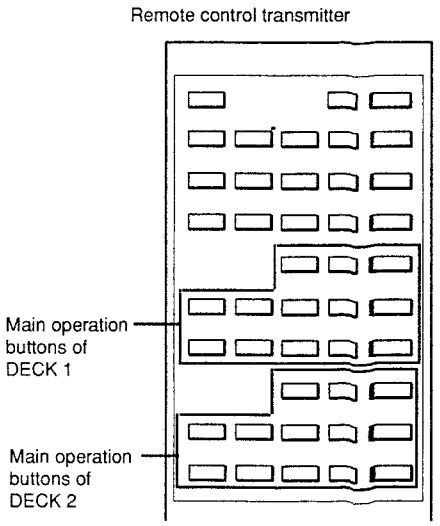
Make sure that power to both the deck and your amplifier/receiver is turned off before making any connection.

- The White plug on the paired connecting cables corresponds to the Left channel and the Red plug corresponds to the Right channel. Make sure that the left and right channel connections are properly made, and that the plugs are inserted firmly.
- The LINE OUT/PLAY jacks on the deck should be connected to the Tape PB (Playback/Input) jacks on your amplifier/receiver, and the LINE IN/REC jacks on the deck should be connected to the Rec Out (Recording/Output) jacks on your amplifier/receiver.
- Connect the power cord to an AC wall outlet or to an AC outlet on the rear panel of your amplifier/receiver (if provided).

NOTES ON THIS MANUAL

In this manual, the main operation buttons of the front panel and remote control transmitter are indicated based on DECK 1 when the operation is common to both DECKs 1 and 2. Since the locations of the buttons of DECK 2 and DECK 1 are the same, you can easily find the desired button even when operating DECK 2.





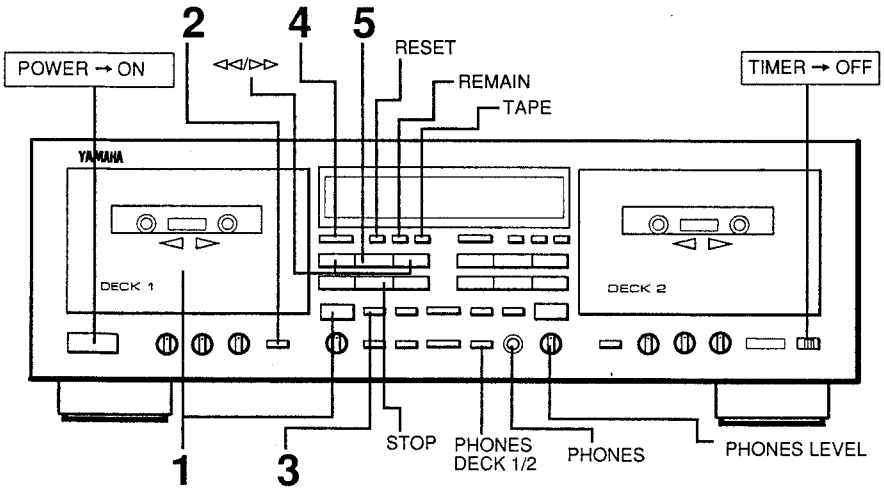
PLAYBACK (Common to DECKs 1 and 2)

Preparation for playback

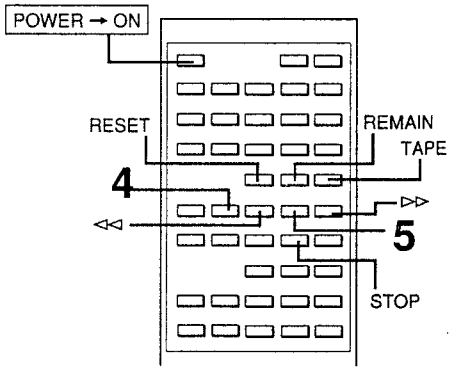
- Make sure that the TIMER selector is set to the OFF position, then turn on the POWER switch.
- Set your amplifier or receiver to cassette deck function mode.

Basic Operation - To playback a cassette tape

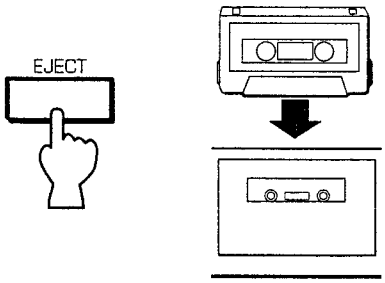
Front panel



Remote control transmitter



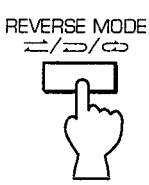
1



Insert the cassette with the exposed tape side facing down. (The side facing you is called the forward side and the opposite side is called the reverse side.) To close the compartment, push in the compartment door until it locks shut.

2

3



4

Select the tape running direction. Each time this button is pressed, the tape running direction changes between forward (▷) and reverse (◁), and the corresponding indicator lights on the display.

5

DOLBY NR button setting (in step 2)

Be sure to set the DOLBY NR button according to the system used for recording.

Each time this button is pressed, Dolby NR switches to DB, to DC, to OFF and then back around to DB.

OFF: For a tape recorded with DOLBY NR OFF.

DB: For a tape recorded with DOLBY B NR. The DB indicator lights.

DC: For a tape recorded with DOLBY C NR. The DC indicator lights.

- If the DOLBY NR button is switched during playback, the sound will be muted temporarily.

Dolby noise reduction manufactured under license from Dolby Laboratories Licensing Corporation.
"DOLBY" and the double-D symbol DD are trademarks of Dolby Laboratories Licensing Corporation.

REVERSE MODE button setting (in step 3)

The quick auto reverse function allows the tape running direction be reversed automatically. Each time this button is pressed, the auto reverse mode switches in the following order, ⇄ → ⇉ → ↻. Select an auto reverse mode (⇉ or ↻) or manual reverse mode (⇄).

⇄: When playback or fast forwarding (or rewinding) of one side of a tape is finished, the deck stops at the end of the tape.

⇉: Both sides of the tape are played back. After playing, the deck stops at the end of the tape. (When the tape running direction is set to ◀, only the reverse side is played.)

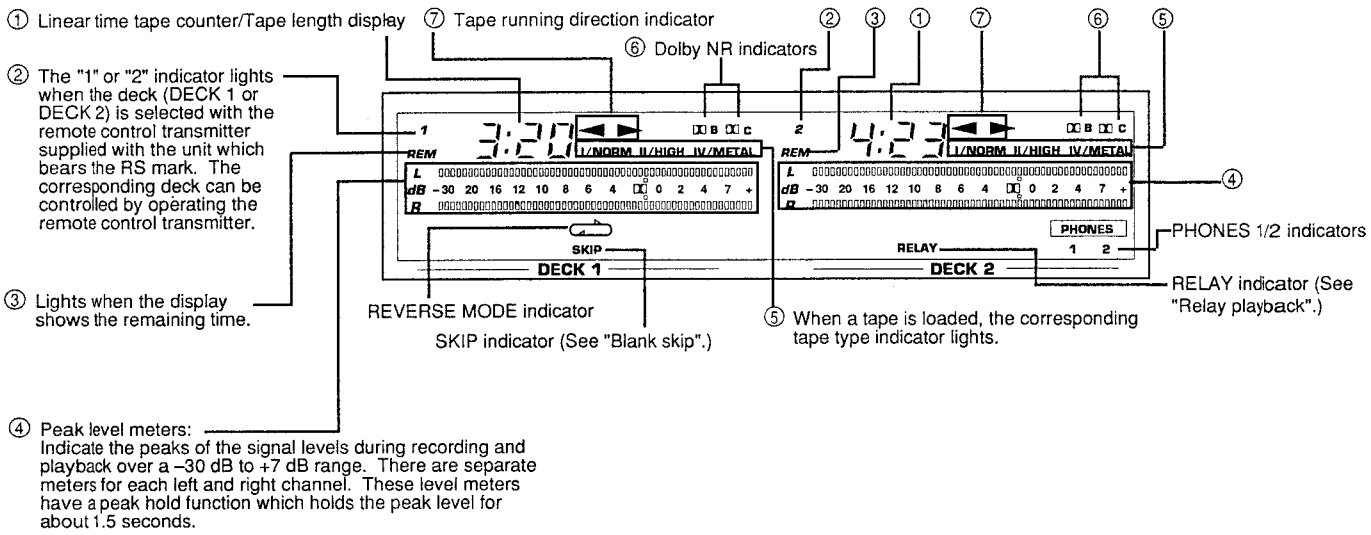
- When the tape is fast forwarded to the end of the forward side, playback automatically starts from the reverse side.

↻: Both sides of the tape are repeatedly played back (up to 8 times).

- When the tape is fast forwarded or rewound to the end of a side, playback automatically starts from the other side.

Display during playback

- DECK 1 and DECK 2 each has its own indicators. For DECK 2, refer to the numbered indicators of the DECK 1 section. Indicators other than the numbered indicators are common to DECK 1 and DECK 2.


① Linear time tape counter/Tape length display
⑦ Tape running direction indicator
⑥ Dolby NR indicators
② The "1" or "2" indicator lights when the deck (DECK 1 or DECK 2) is selected with the remote control transmitter supplied with the unit which bears the RS mark. The corresponding deck can be controlled by operating the remote control transmitter.
③ Lights when the display shows the remaining time.
④ Peak level meters: Indicate the peaks of the signal levels during recording and playback over a –30 dB to +7 dB range. There are separate meters for each left and right channel. These level meters have a peak hold function which holds the peak level for about 1.5 seconds.
REVERSE MODE indicator
SKIP indicator (See "Blank skip".)
⑤ When a tape is loaded, the corresponding tape type indicator lights.
PHONES 1/2 indicators
RELAY indicator (See "Relay playback".)
I/NORM II/HIGH IV/METAL
REM
SKIP
RELAY
PHONES
DECK 1
DECK 2

Notes on the quick auto reverse function

This unit uses a light sensor to detect the tape leader for quick auto reverse. Occasionally, tapes will have colored leaders which may cause the quick auto reverse operation to malfunction. In this case, the tape will reverse after it reaches the end. Also, sunlight or artificial light shining directly on the front of the deck may cause this operation to malfunction.

To adjust the volume level

Use the volume control of the amplifier or receiver.

To use headphones

Insert the headphones plug into the PHONES jack and adjust the volume with the PHONES LEVEL control. Rotate it clockwise to increase the volume. Rotate it counterclockwise to decrease the volume. Since the sound is also heard from the speakers, operate the amplifier to cut off the sound to the speakers for private listening.

- It is not necessary to operate the PHONES DECK 1/2 selector when either DECK 1 or 2 is played. The selector is set automatically according to the deck being played, and the corresponding PHONES 1 or 2 indicator lights. When both DECKs 1 and 2 are played, the sound of each deck can be monitored by switching the PHONES DECK 1/2 selector.

To fast forward or rewind the tape

When the tape running indicator ▷ is lit:
Pressing the ▷▷ button fast forwards the tape while pressing the ◁◁ button rewinds the tape.
When the tape running indicator ◁ is lit:
Pressing the ◁◁ button fast forwards the tape while pressing the ▷▷ button rewinds the tape.

Linear time tape counter and the tape length setting

Use the linear time tape counter as an aid in locating a point on a tape (– 99 min. 59 sec. to 99 min. 59 sec). To set the counter reading to "0:00", press the RESET button. This counter is not an actual clock. Rather, it is a counter with minutes and seconds divisions when the tape length of the tape to be used is memorized. To memorize the tape length, press the TAPE button so that the desired tape length appears on the display. The tape length can be set to C60, C90, C46 or C46L.

To display the remaining time

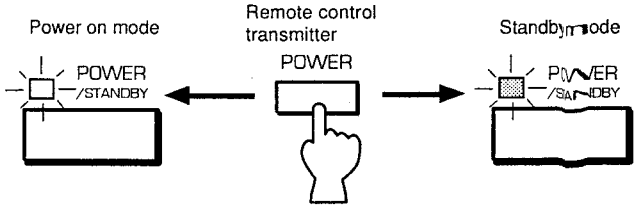
Press the REMAIN button. The REM indicator lights and the display shows the remaining time. Press again to return to the elapsed time.

To stop playback

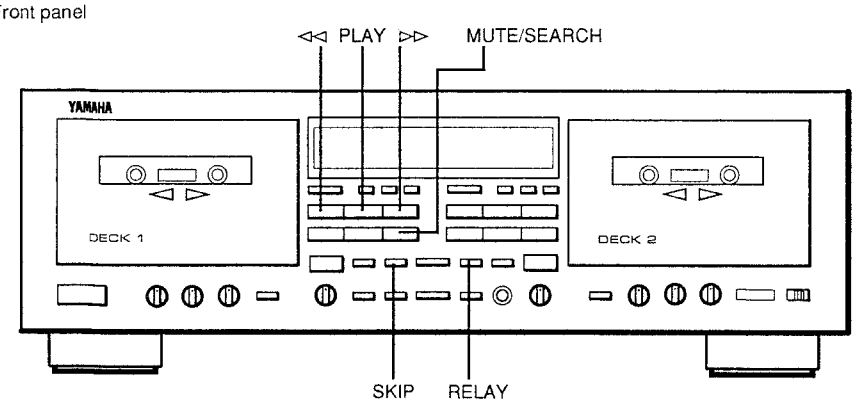
Press the STOP button. To remove the cassette tape, press the EJECT button. The cassette compartment door opens. To turn off the power, press the POWER button.

Standby mode (Europe model only)

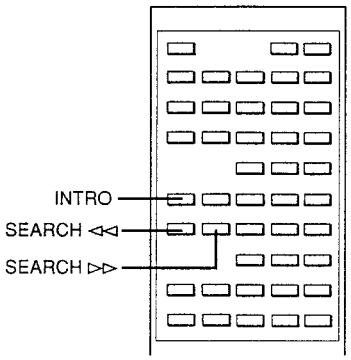
While the power is on, pressing the POWER button on the remote control transmitter switches the unit to the standby mode. (In this mode, the indicator is dimly lit.)



Front panel



Remote control transmitter



Selection search - To play back a desired selection by searching for the beginning of the selection

To search for the next selection

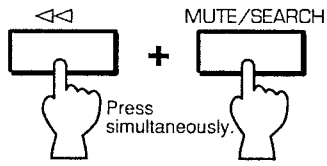
When the ▷ tape running indicator is lit:

Front panel

Remote control transmitter

When the ◁ tape running indicator is lit:

Front panel



Remote control transmitter

To search for the beginning of the current selection

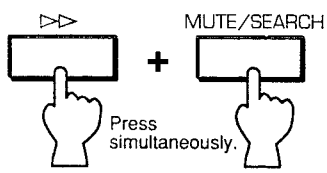
When the ▷ tape running indicator is lit:

Front panel

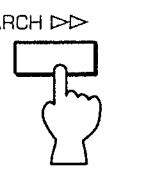
Remote control transmitter

When the ◁ tape running indicator is lit:

Front panel



Remote control transmitter



To search for the selection located before the current selection

- Operate the following buttons when the beginning of the current selection is played.

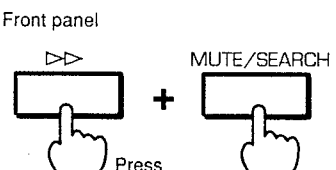
When the ▷ tape running indicator is lit:

Front panel

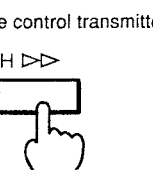
Remote control transmitter

When the ◁ tape running indicator is lit:

Front panel



Remote control transmitter



Intro scan - To play back the beginning of each selection automatically

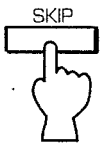
- The intro scan function can be controlled via the remote control transmitter only.

Each selection is played for about 15 seconds in the tape running direction.

To resume normal playback when the desired selection is found:

Blank skip - To skip a long blank section

When the deck encounters a blank section of more than about 15 seconds, playback skips to the next selection.



The SKIP indicator lights on the display.
- To exit blank skip mode, press the SKIP button so that the SKIP indicator goes off.

Relay playback - To play DECK 1 and DECK 2 sequentially

Load the cassette tapes into DECKs 1 and 2, start playback of DECK 1 and press the RELAY button. The signal of each deck is output from the DECK 1 LINE OUT PLAY jacks.
- If both DECKs 1 and 2 are in playback mode, the RELAY button does not function.

The RELAY indicator lights on the display and the unit enters relay playback mode. The relay patterns are different according to the REVERSE MODE button. Refer to the following.
- To exit relay playback, press the RELAY button so that the RELAY indicator goes off.

When the REVERSE MODE button is set to ⇄:
DECK 1 (forward side or reverse side) ➡ DECK 2 (forward side or reverse side)

When the REVERSE MODE button is set to ⇉:
DECK 1 (forward side ➡ reverse side) ➡ DECK 2 (forward side ➡ reverse side)
- When the tape running direction is set to ◀, only the reverse side is played.

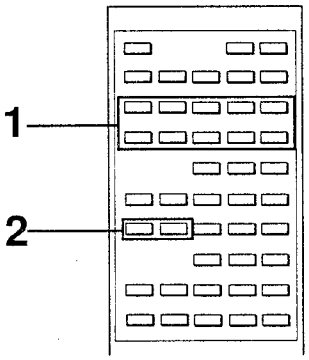
When the REVERSE MODE button is set to ↻:
DECK 1 (forward side ➡ reverse side) ➡ DECK 2 (forward side ➡ reverse side)

Up to 8 times

Direct search - To search for a selection by specifying the number of selections to be skipped

Direct search function allows you to select a selection located up to 99 selections after or before that which you are now listening to or are stopped at.

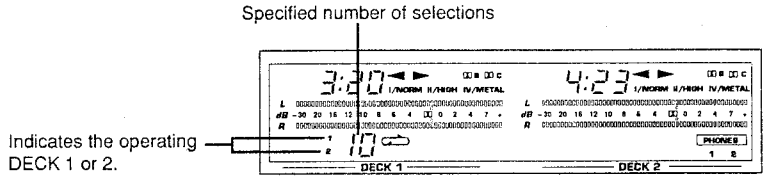
- The direct search function can be controlled via the remote control transmitter only.



Example: To listen to the selection located 10 selections after the current selection

1 Enter the number of selections to be passed with the digit buttons (1 - 0).

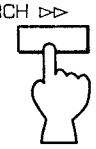
Press "1" and "0" in this example.



If you make a mistake during entry:
To correct a selection number of one digit, press the "0" button and then enter the new number. To correct a selection number of two digits, press the corresponding digit buttons.

2 When the ▷ tape running direction indicator is lit:

SEARCH ▷▷



When the ◁ tape running direction indicator is lit:

◁◁ SEARCH

The tape will be fast forwarded or rewound to the beginning of the 10th selection. As the deck searches for the 10th selection, the display will count down the number of selections remaining to be passed. Once the selection is reached, the number of selection goes off and playback starts automatically.

- If the specified selection exists on the other side of a tape, set the REVERSE MODE button to the ⇄ position or ⇆ position.
- If the STOP, PLAY, INTRO, ◁◁/▷▷ or SEARCH ◁◁/▷▷ button is pressed, while searching, the direct search operation will be canceled.

Example: To listen to the selection located 10 selections before the current selection

1 Enter the number of selections to be passed with the digit buttons (1 - 0).

If the elapsed time of the current selection is 5 seconds or more, the number of selections added to 1 should be specified. (In this case, "11" should be entered.) If the elapsed time of the current selection is less than 5 seconds, just press the number of selections to be passed. (Press "1" and "0" in this example.)

2 When the ▷ tape running direction indicator is lit:

◁◁ SEARCH

When the ◁ tape running direction indicator is lit:

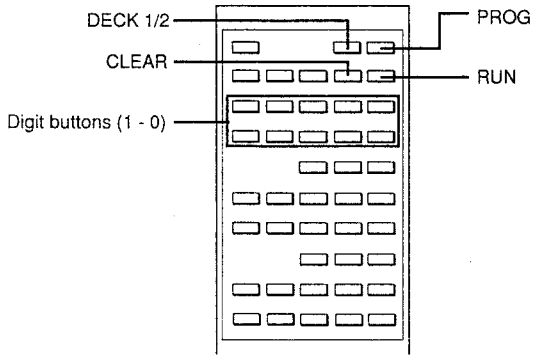
SEARCH ▷▷

NOTES:
After specifying the number of selections, the SEARCH ◁◁ or ▷▷ button should be pressed within 20 seconds. If the displayed number of selections goes off, specify the number again.

Program playback - To play desired selections in a desired order

The program playback function allows you to specify up to 15 selections and rearrange them in any desired order. You can specify from the first to the 99th selection on the cassette tape.

- The program playback function can be controlled via the remote control transmitter only.



Example: To program the 2nd selection of DECK 1 in the first step and 4th selection of DECK 2 in the 2nd step

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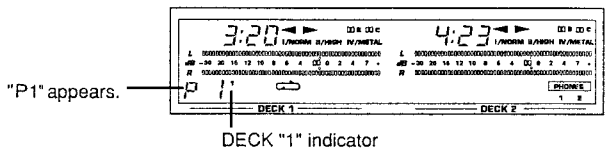
1 During stop mode

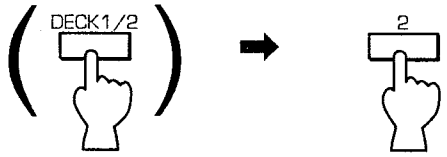
PROG

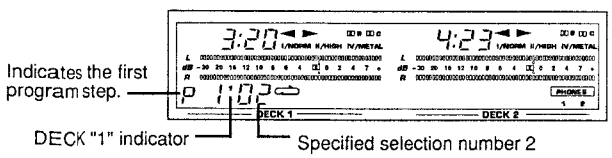
The unit enters program mode and "P1" (first program step) appears on the display. The first time the PROG button is pressed, DECK 1 is selected automatically.



2 Select the deck (DECK 1 or 2) which contains the selection number to be programmed in the first step with the DECK1/2 button and enter the selection number with the digit buttons.

In this example, as DECK 1 is already selected, enter only the selection number 2 with the digit button. The DECK "1" indicator and the specified selection number "02" blink on the display.

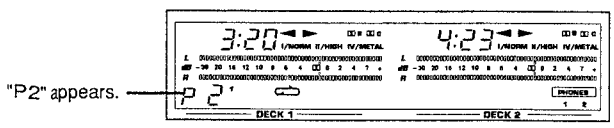




3

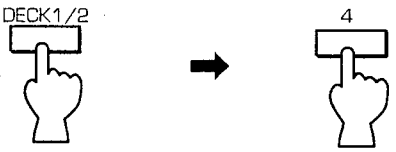
PROG

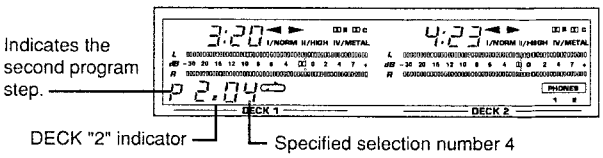
The contents of the first program step (P1) is programmed and "P2" (second program step) appears on the display to indicate that the unit is ready to program the second step.



4 Select the deck (DECK 1 or 2) which contains the selection number to be programmed in the second step with the DECK1/2 button and enter the selection number with the digit buttons.

In this example, press the DECK 1/2 button so that the DECK "2" indicator appears on the display and enter the selection number 4 with the digit button. The DECK "2" indicator and the specified selection number "04" blink on the display.

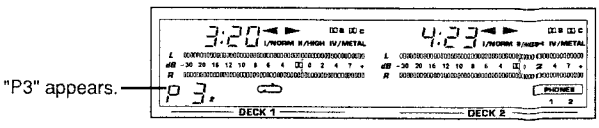




5

PROG

The contents of the second program step (P2) is programmed and "P3" (third program step) appears on the display to indicate that the unit is ready to program the third step. In this example, programming is completed.



6

RUN

DECK 1 and 2 search for their first programmed selections and playback starts in the programmed order. The display shows the program step, the deck number and the selection number being played. After all of the programmed selections are played, "End" appears on the display.

- Set the DOLBY NR button properly according to the Dolby NR setting of each tape.

When you make a mistake during entry of a selection number

To correct a selection number of one digit, press the "0" button and then enter the new number. To correct a selection number of two digits, press the corresponding digit buttons.

Notes on programming

- Programming is possible during Stop, Playback, Fast Forward or Rewind mode, but Program playback can start only during Stop mode.
- During programming, the buttons (PROG, DECK1/2 and digit buttons) should be pressed within about 20 seconds after the previous button is pressed. Otherwise, the program display will go off and programming is not possible. In this case, press the PROG button so that the display shows the program step to be memorized.
- If a selection number which does not exist on the cassette tape is programmed, "Err" and the program contents will be displayed alternately after searching for that selection and playback stops. When this display appears, check the program contents and correct them.
- When a program is performed in DECK 1, the signal is output from the DECK 1 LINE OUT PLAY jacks. When a program is performed in DECK 2, the signal is output from the DECK 2 LINE OUT PLAY jacks. When a program is performed in both decks, the signal is output from the DECK 1 LINE OUT PLAY jacks.

Notes on Selection Search, Intro Scan, Direct Search and Program Playback

- The blank section between selections must be at least 4 seconds long.
- With tapes recorded at a low level or having excessive noise, these operations may not be carried out properly.

To check the program contents

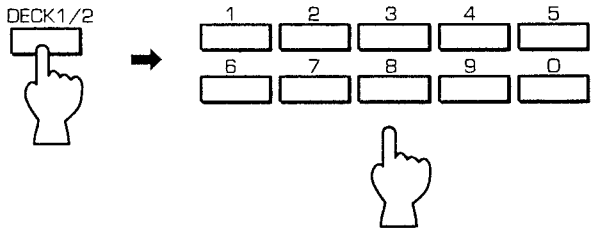
Each time the PROG button is pressed, the program step and programmed selection number are displayed in the programmed order.

To correct the program contents

1

Press the PROG button so that the program step to be corrected appears on the display.

2



Select DECK 1 or 2 with the DECK 1/2 button (if necessary) and enter the new selection number with the digit buttons (1 - 0). The DECK "1" or "2" indicator and selection number blink.

3

The new program contents are memorized and the next program step appears on the display.

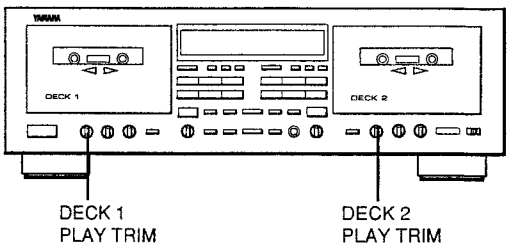
To clear the entire program contents

While the display is in program mode (display shows a program step), press the CLEAR button.

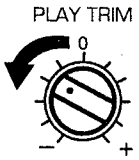
- If the display is not in program mode, press the PROG button and then the CLEAR button.
- Even when the power is turned off, the program contents will not be cleared.

PLAY TRIM control adjustment

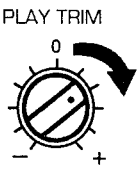
When distortion or the absence of high frequencies is noticeable when playing a tape recorded on another cassette deck, compensate the high frequency response with the PLAY TRIM control.

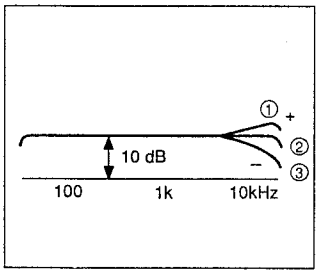


When distortion is noticeable, attenuate the high frequencies.



When high frequencies are absent, boost the high frequencies.





① High frequency sound is distorted.
② Flat
③ High-frequency sound is absent.

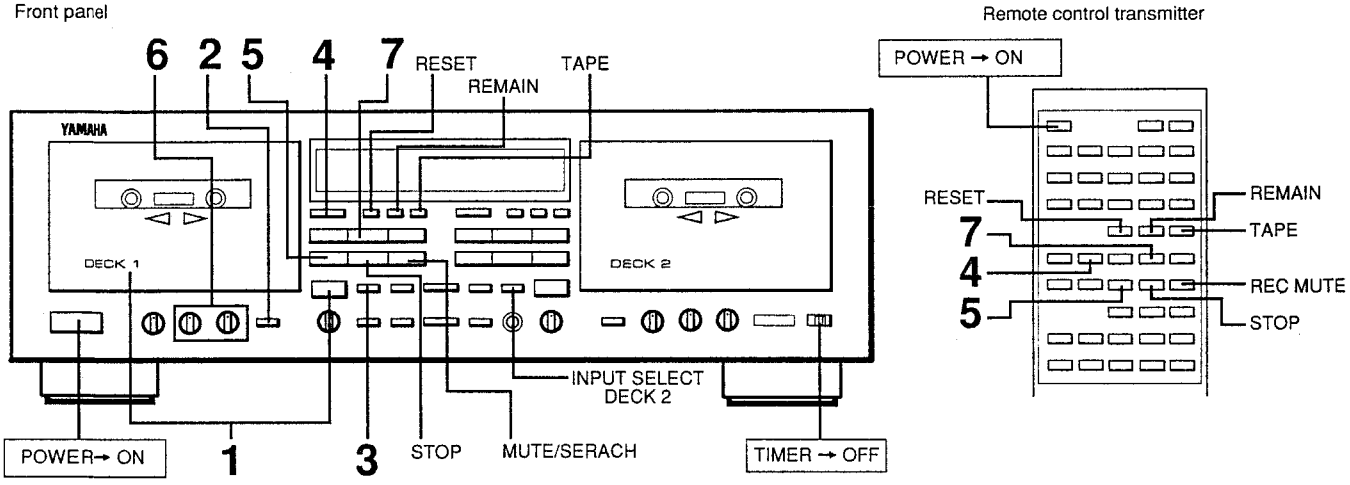
RECORDING

ENGLISH

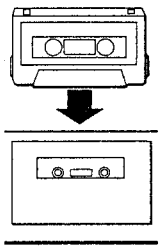
Preparation for recording

- Make sure that the TIMER selector is set to the OFF position, then turn on the POWER switch.

Basic operation - To record a program source onto DECK 1 or DECK 2



1 EJECT



Insert the cassette with the exposed tape side facing down. (The side facing you is called the forward side and the opposite side is called the reverse side.) To close the compartment, push in the compartment door until it locks shut.

2 DOLBY NR

OFF/□□B/□□C

3 REVERSE MODE

⇄/⇉/⇆

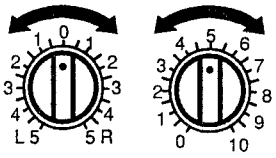
4 DIRECTION

Select the tape running direction. Each time this button is pressed, the tape running direction changes between forward (▷) and reverse (◁), and the corresponding indicator lights on the display.

5 REC/PAUSE

The REC indicator lights on the display. The deck enters Rec standby mode.

6 BALANCE REC LEVEL



Play the program source to be recorded and adjust the recording level and balance.

7 PLAY

Recording starts.

DOLBY NR button setting (in step 2)

Each time this button is pressed, Dolby NR switches to □□B, to □□C, to OFF and then back around to □□B.

OFF: No noise reduction.

□□ **B:** For recording the sources with Dolby B NR. The □□B indicator lights.

□□ **C:** For recording the sources with Dolby C NR. The □□C indicator lights.

- Dolby noise reduction is an extremely effective method of reducing undesirable background hiss on tapes. This unit incorporates both Dolby B NR and the newer Dolby C NR system. Dolby C NR is approximately twice as effective as the earlier Dolby B NR.

REVERSE MODE button setting (in step 3)

The quick auto reverse function allows the tape running direction be reversed automatically. Each time this button is pressed, the auto reverse mode switches in the following order, ⇄→ ⇉ → ⇆. Select an auto reverse mode (⇉ or ⇆) or manual reverse mode (⇄).

⇄: When recording of one side of a tape is finished, the deck stops at the end of the tape.

⇉ or ⇆: Both sides of a tape are recorded. After recording, the deck stops at the end of the tape.

- When the tape running direction is set to ◀, only the reverse side is recorded.

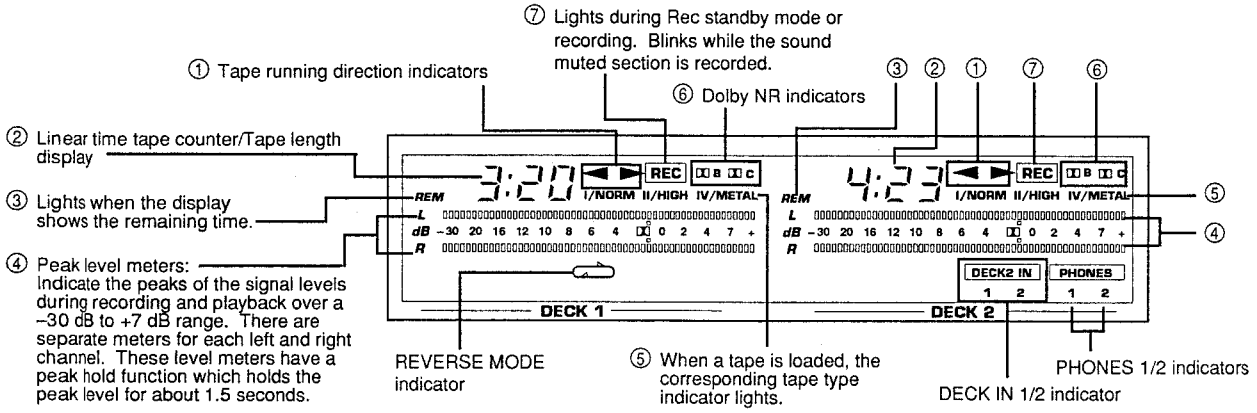
Setting the recording level (in step 6)

Play the loudest passage of the source to be recorded and watch the meter readings. Adjust the REC LEVEL control so that the highest peak is between 0 dB and +4 dB. Normally, it is best to adjust the BALANCE control such that the left and right meter readings are even.

- The □□ mark indicates the Dolby noise reduction system standard level.

Display during recording

- DECK 1 and DECK 2 each has its own indicators. For DECK 2, refer to the numbered indicators of the DECK 1 section. Indicators other than the numbered indicators are common to DECK 1 and DECK 2.


⑦ Lights during Rec standby mode or recording. Blinks while the sound muted section is recorded.
① Tape running direction indicators
⑥ Dolby NR indicators
③ ② ① ⑦ ⑥
② Linear time tape counter/Tape length display
③ Lights when the display shows the remaining time.
④ Peak level meters: Indicate the peaks of the signal levels during recording and playback over a –30 dB to +7 dB range. There are separate meters for each left and right channel. These level meters have a peak hold function which holds the peak level for about 1.5 seconds.
REC
I/NORM II/HIGH IV/METAL
REM
L
dB –30 20 16 12 10 8 6 4 0 2 4 7 +
R
DECK2 IN
PHONES
1 2
DECK 1
DECK 2
⑤
④
REVERSE MODE indicator
⑤ When a tape is loaded, the corresponding tape type indicator lights.
DECK IN 1/2 indicator
PHONES 1/2 indicators

Linear time tape counter and the tape length setting

Use the linear time tape counter as an aid in locating a point on a tape (– 99 min. 59 sec. to 99 min. 59 sec). To set the counter reading to "0:00", press the RESET button.
This counter is not an actual clock. Rather, it is a counter with minutes and seconds divisions when the tape length of the tape to be used is memorized. To memorize the tape length, press the TAPE button so that the desired tape length appears on the display. The tape length can be set to C60, C90, C46 or C46L.

To display the remaining time:

Press the REMAIN button. The REM indicator lights and the display shows the remaining time. Press again to return to the elapsed time.

To stop recording:

Press the STOP button.

To stop recording temporarily:

Press the REC/PAUSE button. To resume recording, press the PLAY button.

Simultaneous recording of two program sources

As DECK 1 and DECK 2 are each provided with independent LINE IN REC jacks, recording of two different sources can be performed on both decks simultaneously.

Setting of the INPUT SELECT button (DECK 2)

When the INPUT SELECT button is pressed so that the DECK IN 1 indicator appears on the display, the input signal at the DECK 1 LINE IN REC jacks is common to both decks. When the INPUT SELECT button is pressed so that the DECK IN 2 indicator appears on the display, only the signal at the DECK 2 LINE IN REC jacks is input.

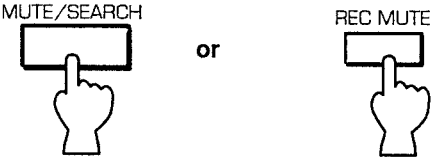
Rec mute operation - Inserting a blank space during recording

During recording:

Front panel
MUTE/SEARCH

or

Remote control transmitter
REC MUTE



During Rec mute operation, the REC indicator blinks.

A 4-second blank interval is automatically recorded on the tape and then the deck enters Recording pause mode. If a blank interval longer than 4 seconds is desired, keep pressing for as long as you want. When the MUTE/SEARCH button is released, the deck enters Recording pause mode after making a 4-second blank interval. To resume recording, press the PLAY button.

- If a blank interval shorter than 4 seconds is desired, press the PLAY button at the desired point during Rec mute mode. Recording will be resumed from that point.

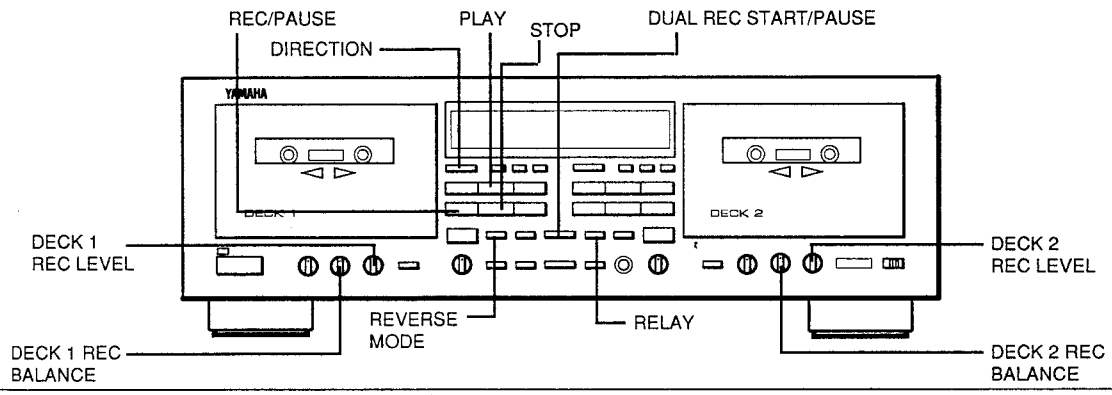
Rec return operation - To return to the point at which the recording started

During recording

When the ▷ indicator is lit:

When the ◁ indicator is lit:

- When the linear counter is reset to "0:00" during recording, Rec return operation automatically rewinds the tape to the "0:00" point. Also, if the PLAY button is pressed during recording, Rec return operation automatically rewinds the tape to the point where the PLAY button was pressed.

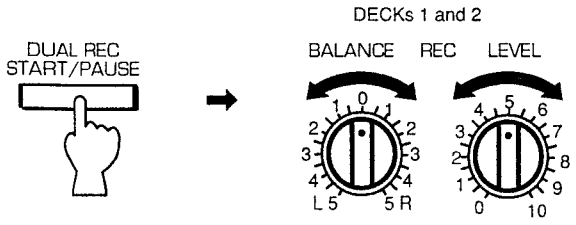


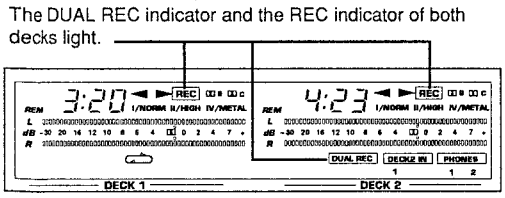
Dual recording - To record a program source on both decks simultaneously

To make the same tapes, use tapes of identical length.
The signal at the DECK 1 LINE IN REC jacks is recorded on both decks.

1 Set both decks to stop mode and perform steps 1 through 4 of "Basic operation".

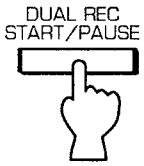
2 Press the DUAL REC START/PAUSE button. As the decks enter Rec standby mode, adjust the recording level of both decks. (See "Setting the recording level".)





- The signal of the monitoring sound is output through the DECK 1 LINE OUT PLAY jacks.

3 To start recording, press the DUAL REC START/PAUSE button again.



Both decks start recording simultaneously.

- If the STOP, ◁◁ or ▷▷ button is pressed on one deck, the dual recording mode will be canceled but the other deck will continue recording.

To stop recording temporarily
Press the DUAL REC START/PAUSE button. Both decks enter rec pause mode. To resume recording, press the DUAL REC START/PAUSE button again.

To stop recording in the middle of the tape
Press the STOP button of both decks on the front panel simultaneously. If the STOP button of one deck is pressed, the other continues recording.

Notes on making identical tapes
When you are making identical tapes, simultaneously operate the buttons which correspond to the following functions of both decks on the front panel. Both decks are controlled simultaneously. If only one deck is operated, the other continues recording.

Rec mute: After the Rec mute operation, the decks enter rec pause mode. To resume recording, press the DUAL REC START/PAUSE button.

Rec return: After the Rec return operation, the decks enter stop mode and the recording mode is canceled. If only one deck is operated, the other continues recording.

- When the REC PAUSE button of one deck is pressed, the corresponding deck enters rec pause mode and the other continues recording. To resume recording, press the DUAL REC START/PAUSE button or PLAY button.

Relay recording - To record a program source sequentially on DECK 1 and DECK 2

Recording can be made sequentially on DECK 1 and 2. The signal at the DECK 1 LINE IN REC jacks is recorded on both decks.

1 Set both decks to stop mode and perform steps 1 through 4 of "Basic operation".
The relay patterns are different according to the REVERSE MODE button. Refer to the following.

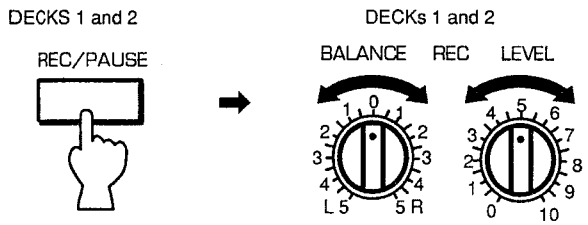
When the REVERSE MODE button is set to ⇄:
DECK 1 (forward side or reverse side) ➡ DECK 2 (forward side or reverse side)
When the REVERSE MODE button is set to ⇉ or ⇆:
DECK 1 (forward side ➡ reverse side) ➡ DECK 2 (forward side ➡ reverse side)

- When the tape running direction is set to ◁, only the reverse side is recorded.

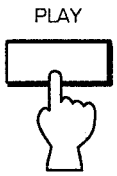
2 Press the RELAY button.

The RELAY indicator lights on the display.

3 Adjust the recording level of each deck.
Press the REC/PAUSE button of DECK 1. As the DECK 1 enters rec standby mode, adjust the recording level of DECK 1. (See "Setting the recording level".) After adjusting the recording level of DECK 1, press the REC/PAUSE button of DECK 2 and adjust the recording level of DECK 2.



4 Start recording of DECK 1 by pressing the DECK 1 PLAY button.



- The signal of the monitoring sound is output from the DECK 1 LINE OUT PLAY jacks.
- To exit relay recording mode, press the RELAY button so that the RELAY indicator goes off.
- If the PLAY button or REC/PAUSE button of the deck which is in stop mode is pressed, the other deck which is in recording mode will stop.

NOTES:
- Relay recording should be started from DECK 1.
- When both decks are in recording mode or playback mode, or the signal from the DECK 2 LINE IN REC jacks is being recorded on DECK 2, the RELAY button cannot be operated.

DOLBY HX PRO DYNAMIC BIAS SERVO SYSTEM
This unit incorporates the Dolby HX Pro system which automatically controls the effective bias to reduce distortion and noise, improving high frequency response during recording. Tapes recorded with this system retain the same high quality even when played back on any other cassette deck.

Dolby noise reduction and HX Pro headroom extension manufactured under license from Dolby Laboratories Licensing Corporation, HX Pro originated by Bang & Olufsen.

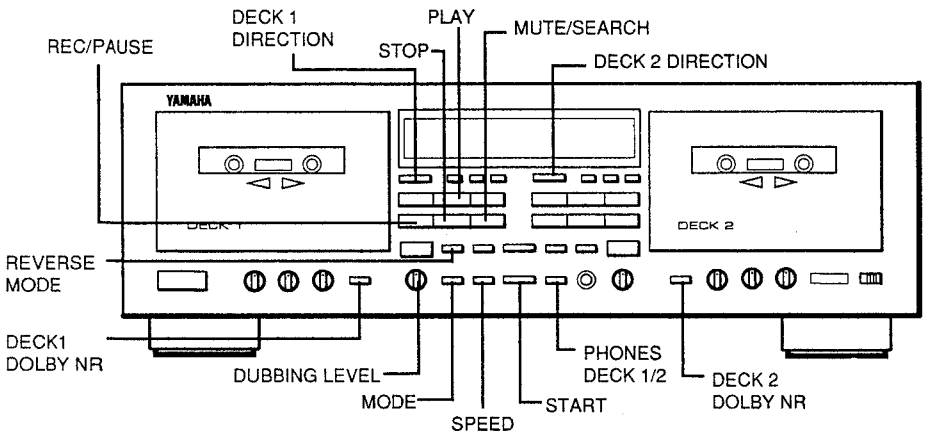
"DOLBY", the double-D symbol ⧈ and "HX PRO" are trademarks of Dolby Laboratories Licensing Corporation.

DUBBING (From DECK 2 to DECK 1)

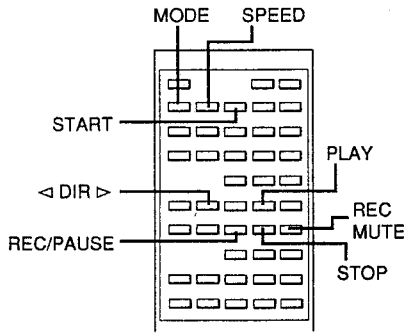
ENGLISH

There are 4 dubbing modes: Auto, Manual, Skip and Program. Select the desired dubbing mode according to your purpose. Load a blank cassette tape in DECK 1 and the original cassette tape in DECK 2.

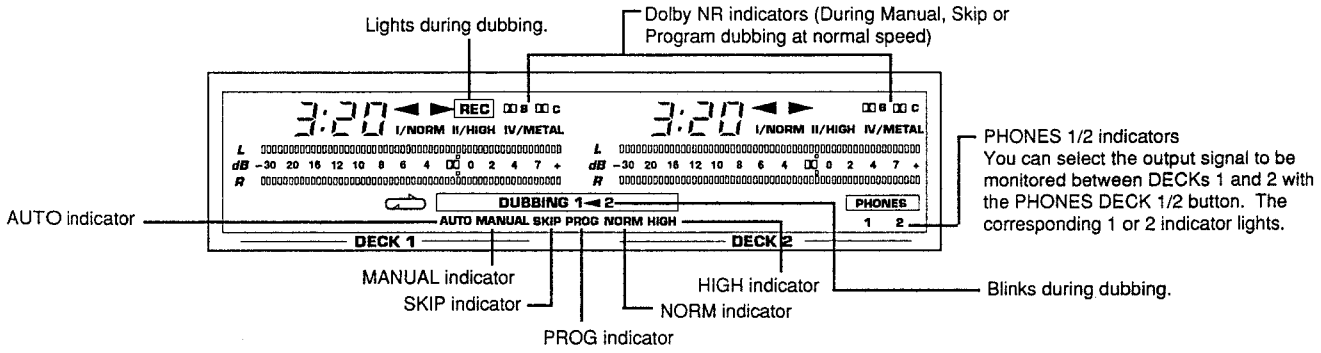
Front panel



Remote control transmitter



Display during dubbing


Lights during dubbing.
Dolby NR indicators (During Manual, Skip or Program dubbing at normal speed)
REC
I/NORM II/HIGH IV/METAL
DUBBING 1→2
PHONES
AUTO MANUAL SKIP PROG NORM HIGH
DECK 1
DECK 2
AUTO indicator
MANUAL indicator
SKIP indicator
PROG indicator
NORM indicator
HIGH indicator
Blinks during dubbing.
PHONES 1/2 indicators
You can select the output signal to be monitored between DECKs 1 and 2 with the PHONES DECK 1/2 button. The corresponding 1 or 2 indicator lights.

Auto dubbing

This function is convenient for creating an identical cassette tape (both sides).

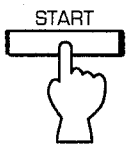
1 Press the MODE button so that the AUTO indicator lights on the display.

Each time the MODE button is pressed, the dubbing mode switches to AUTO, to MANUAL, to SKIP, to PROG and then back around to AUTO.

2 Set the dubbing speed to either NORM (normal speed) or HIGH (2 times normal speed) with the DUBBING SPEED button.

The corresponding NORM or HIGH indicator lights.

3 Press the START button.



Both cassette tapes are rewound to the beginning of the forward side and both sides of the tape will be dubbed from the forward side regardless of the settings of the DIRECTION button and REVERSE button.

- When DECK 1 comes to the reversing position earlier than DECK 2, DECK 1 enters the rec standby mode. When DECK 2 comes to the reversing position earlier than DECK 1, DECK 2 enters stanby mode. When the other deck comes to the reversing position, the dubbing is resumed with the beginning of the reverse sides of the tapes aligned with each other automatically.

To stop dubbing in the middle of the tape

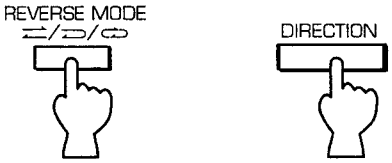
When the DECK 2 STOP button is pressed, DECK 2 stops immediately and DECK 1 stops after recording a blank section of about 4 seconds. When the DECK 1 STOP button is pressed, both decks stop simultaneously. The dubbing mode is canceled.

Setting of the DOLBY NR buttons
When High speed dubbing is selected, DECK 1 makes a tape with the same Dolby NR type as the tape in DECK 2 and you can not operate the DOLBY NR buttons.
When Normal speed dubbing is selected, you can dub a tape with the desired Dolby NR type. Set the DOLBY NR button of DECK 2 to the proper position and the DOLBY NR button of DECK 1 to the desired position. To make a tape with the same Dolby NR type as the tape in DECK 2, set both of the DOLBY NR buttons to off.

Manual dubbing

This function is convenient for editing the dubbing. It is possible to record blank sections or to enter the rec pause mode. In addition, you can adjust the dubbing level.

1 Set the REVERSE MODE button and DIRECTION button of both decks as desired.

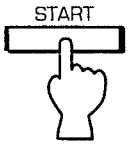


2 Press the MODE button so that the MANUAL appears on the display.

3 Set the dubbing speed to either NORM (normal speed) or HIGH (2 times normal speed) with the DUBBING SPEED button.

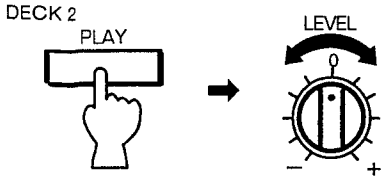
The corresponding NORM or HIGH indicator lights.

4 Press the START button.



The REC indicator lights on the display and DECK 1 enters rec standby mode.

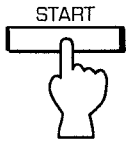
5 Play the cassette tape in DECK 2 and adjust the dubbing level with the DUBBING LEVEL control.



Observe the peak level meter and adjust the dubbing level. The level of the left and right channels is adjusted simultaneously.

After adjusting the dubbing level, rewind the cassette tape in DECK 2 to the beginning of the selection to be dubbed.

6 To start dubbing, press the START button.



Setting of the DOLBY NR buttons
When High speed dubbing is selected in step 3, DECK 1 makes a tape with the same Dolby NR type as the tape in DECK 2 and you can not operate the DOLBY NR buttons.
When Normal speed dubbing is selected, you can dub a tape with the desired Dolby NR type. Set the DOLBY NR button of DECK 2 to the proper position and the DOLBY NR button of DECK 1 to the desired position. To make a tape with the same Dolby NR type as the tape in DECK 2, set both of the DOLBY NR buttons to off.

To stop dubbing temporarily and edit the tape
DECK 1 operation:
Press the REC/PAUSE button or MUTE/SEARCH button of DECK 1 (or REC MUTE button of DECK 1 on the remote control transmitter). When the REC/PAUSE button is pressed, DECK 1 enters rec pause mode. When the MUTE/SEARCH button (or REC MUTE button on the remote control transmitter) is pressed, DECK 1 creates a blank section of about 4 seconds and enters rec pause mode.
DECK 2 operation:
While DECK 1 is in rec pause mode, the tape in DECK 2 can be fast forwarded, rewound, stopped or played. Also, the Direct search function or Intro scan function can be used to search for the desired selection rapidly.

To resume dubbing
While DECK 1 is in rec pause mode, press the START button or the PLAY button of DECK 1.

To stop dubbing
Press the STOP button of DECK 1. Both decks stop simultaneously and the dubbing mode is canceled.

NOTE:
If the ◁◁ or ▷▷ button of DECK 1 is pressed, DECK 2 will stop and the dubbing will be canceled.

Skip dubbing

Once the unit enters Skip dubbing mode, whenever DECK 2 encounters a blank section of about 15 seconds or longer, DECK 2 fast forwards the tape to the beginning of the next selection. During this period, DECK 1 creates a blank section of about 6 seconds and enters rec pause mode. When DECK 2 reaches the beginning of the next selection, dubbing resumes automatically. Thus, a dubbed tape is created on which any interval between selections on the original tape is arranged into an interval of about 6 seconds.

- If a blank section exists from the forward side through the reverse side, the interval will be slightly longer than 6 seconds.

1 **Set the REVERSE MODE button and DIRECTION button as desired.**

2 **Press the MODE button so that the SKIP indicator appears on the display.**

3 **Perform steps 3 through 6 of "Manual dubbing".**

To stop dubbing
Press the STOP button of DECK 2. DECK 1 creates a blank section of about 4 seconds and stops. When the STOP button of DECK 1 is pressed, both decks stop immediately.

Setting of the DOLBY NR buttons
When High speed dubbing is selected, DECK 1 makes a tape with the same Dolby NR type as the tape in DECK 2 and you can not operate the DOLBY NR buttons.
When Normal speed dubbing is selected, you can dub a tape with the desired Dolby NR type. Set the DOLBY NR button of DECK 2 to the proper position and the DOLBY NR button of DECK 1 to the desired position. To make a tape with the same Dolby NR type as the tape in DECK 2, set both of the DOLBY NR buttons to off.

NOTE:
If the DECK 1 ◁◁ or ▷▷ button is pressed, DECK 2 will stop and the dubbing will be canceled.

Program dubbing

Up to 15 selections (from the first selection to the 99th selection) from the tape in DECK 2 can be programmed in any order and recorded on the tape in DECK 1.

NOTES:
- If the program contains a selection from DECK 1 or programming is not performed, Program dubbing will not be carried out.
- If "Err" appears on the display, both decks will stop and the dubbing mode will be canceled.

1 **Program the desired selections from DECK 2. (Perform steps 1 through 5 of "Program playback".)**

2 **Set the REVERSE MODE button and DIRECTION button.**

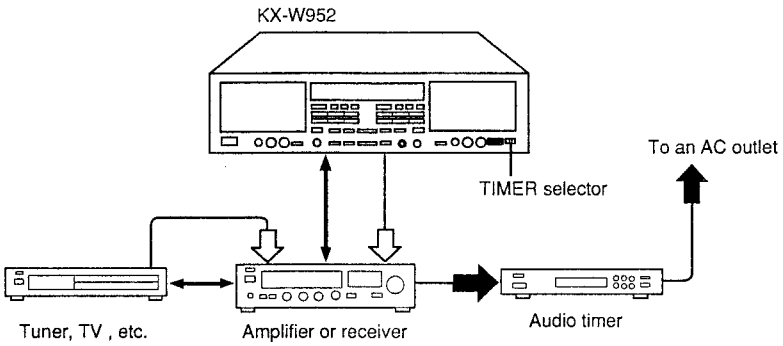
3 **Press the MODE button so that the PROG indicator appears on the display.**

4 **Perform steps 3 through 6 of "Manual dubbing".**
During dubbing, the display shows the program step and selection number being dubbed. After all of the programmed selections are dubbed, DECK 2 stops while DECK 1 creates a blank section of about 4 seconds and stops. "End" appears on the display.

Setting of the DOLBY NR buttons
When High speed dubbing is selected, DECK 1 makes a tape with the same Dolby NR type as the tape in DECK 2 and you can not operate the DOLBY NR buttons.
When Normal speed dubbing is selected, you can dub a tape with the desired Dolby NR type. Set the DOLBY NR button of DECK 2 to the proper position and the DOLBY NR button of DECK 1 to the desired position. To make a tape with the same Dolby NR type as the tape in DECK 2, set both of the DOLBY NR buttons to off.

Notes on dubbing
Do not operate the DECK 2 DOLBY NR button while the tape is dubbed. Otherwise, the sound to be recorded on DECK 1 is interrupted temporarily and the peak level meters of DECK 1 go out momentarily.

TIMER RECORDING/PLAYBACK



When using the TIMER selector in combination with a commercially available audio timer, it is possible to make recordings and initiate playback at a preset time automatically.

Timer recording

1. Make sure that all power cord connections between the timer and amplifier are properly made. No change in any of the other connections between deck and amplifier, etc., is necessary.
2. After turning on the power to each component, select the station on your tuner which you want to record and turn down the volume on your amplifier. This will have no effect on the recording signal level. Remember to set the proper recording level.
3. Set the timer to the desired times. It is advisable to set the timer to begin recording slightly before the actual recording time and end slightly after the actual recording time, so that you leave some room for later editing.
4. Set the cassette deck's TIMER selector to the REC position.
5. The timer will send power to the amplifier, tuner and deck at the preset time, turning all the components on and initiating the recording mode. The deck in which the tape is loaded starts recording. If cassette tapes are loaded in both DECKs 1 and 2, DECK 1 starts recording. If the RELAY button is set to on, the unit enters relay recording mode.

CAUTION:

If the tape cannot be ejected after timer recording, set the TIMER selector to the OFF position and the turn on the POWER switch of this unit. The tape can then be ejected.

Timer playback

1. All connections are the same as for timer recording.
2. Turn on the amplifier and adjust the volume and tone.
3. Set the input mode selector of your amplifier to the tape mode.
4. Set the timer to the time you wish to start and stop playback.
5. Set the TIMER selector to the PLAY position.
6. At the preset time, the timer will turn the power on to the amplifier and tape deck and playback will begin. If cassette tapes are loaded in both decks, DECK 1 starts playing. If the RELAY button is set to on, the unit enters relay play mode. The timer will shut power OFF at the preset time and end playback.

CASSETTE TAPES

CASSETTE TAPES

There are many different types of cassette tapes available. However, they all conform to standard specifications so any brand may be used with the deck.

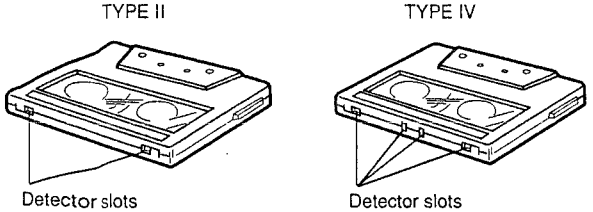
* YAMAHA does not recommend the use of 120 minute length cassettes since the extreme thinness of the tape makes them susceptible to mechanical and recording problems.

- Classification of Cassette Tapes by Formulation
  Cassette tapes are available in four basic types depending on their formulation, or type of magnetic material and manufacturing process. These four types are commonly known as Normal (Type I/NORM), Chrome (Type II/HIGH <CrO2>), Ferrichrome (Type III/FeCr), and Metal (Type IV/METAL), and they each require specific tape deck adjustments for optimum performance.

AUTO TAPE SELECTOR DETECTION SLOTS

The deck has a built-in Auto Tape Selector which automatically adjusts for the proper bias, level and equalization according to the tape formulation — all you have to do is load a cassette and the Auto Tape Selector does the rest.
The Auto Tape Selector determines what type of tape is loaded by sensing detector slots in the top of the tape shell. Each tape formulation has its own characteristic hole markings which has been standardized by the tape industry.

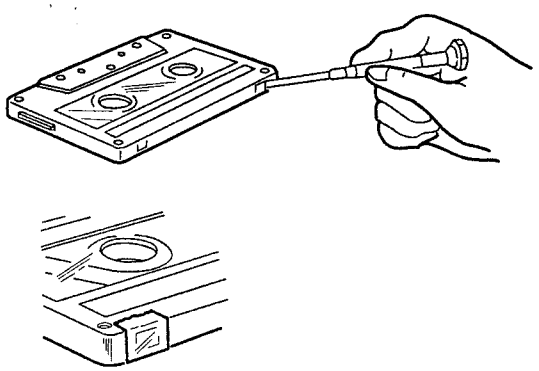
- Early model Metal (Type IV/Metal) tape formulation cassette shells do not have the slots for Auto Tape Selector operation. As a result, early model Metal type tapes recorded on another deck will be played back with the deck at the Chrome (Type II/HIGH <CrO2>) settings. YAMAHA does not recommend recording with this kind of tape on the deck.
- The deck does not have the required setting for Ferrichrome (Type III/FeCr) tape, since this tape formulation is not widely used. Should you use a Ferrichrome tape, it will be recorded and played back at the Normal (Type I/NORM) settings, which will result in an unnatural high frequency emphasis. This effect may be compensated for somewhat by adjusting the BIAS ADJUST to the plus (+) direction during recording, or by using the PLAY TRIM tone control and/or the tone controls of your amplifier/receiver during playback.



PROTECTING YOUR RECORDINGS

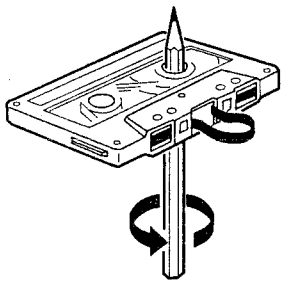
All cassette tapes are provided with erasure protection holes to prevent accidental erasure of recorded contents. There is a small tab covering the hole on each side of the cassette, and it should be broken off after recording the tape. Without this tab covering the hole, it is impossible to record onto that tape. Thus, you can safely protect a recording for as long as you wish without fear of accidental erasure. Should you wish to use a cassette tape protected in this way for recording, simply covering the hole with adhesive tape will permit erasure and re-recording.

- When using Chrome (Type II/HIGH <CrO2>) or Metal (Type IV/METAL) tapes, make sure you do not cover the hole intended for the Auto Tape Selector operation.



TAKING UP SLACK IN THE TAPE

As a precaution against tape entanglement and damage, remove any slack in the tape before inserting cassettes into the deck. This is accomplished by inserting a pencil, pen or similar object into one of the spools and gently winding it until all the slack is removed. You do not have to wind it too tightly.
Be careful not to touch the tape part itself. It is very delicate and touching it may damage the tape and its recorded contents.



STORING CASSETTES

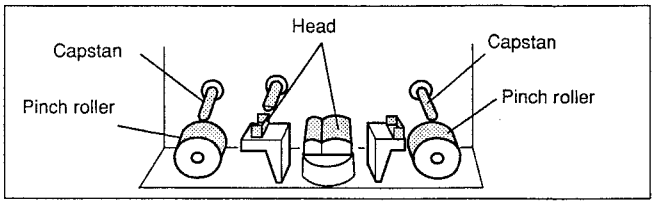
After putting a cassette tape back into its case, store it in a location away from exposure to direct sunlight, humidity, high temperatures, and magnetic fields (away from television sets, speakers, etc.). High temperatures and humidity will damage the tape itself, while exposure to magnetic fields may cause a loss of recorded material. Avoid touching the tape surface with your fingers, since dirt or finger oil will contaminate the deck's heads.

MAINTENANCE

CLEANING OF THE TAPE PATH

Continued high quality performance of your deck is dependent upon periodic cleaning of the heads, capstan, pinch roller, and all surfaces over which the tape travels. Normal use will cause an accumulation of dirt and dust on the heads, capstans, and pinch rollers. This can lead to poor sound quality, drop outs (intervals with no sound), unsteady tape speed, loss of high frequency response, etc. Thus, clean the heads and all surfaces over which the tape travels with a commercially available cleaning cassette and fluid type cleaner.

Inside of the cassette compartment



DEMAGNETIZATION

After 20-30 hours of use, enough residual magnetism will have built up on the heads to cause poor high frequency reproduction. At this time you should use a commercially available head demagnetizer.

- When demagnetizing the heads, be sure to follow the instructions of the head demagnetizer carefully.

REMOTE CONTROL TRANSMITTER

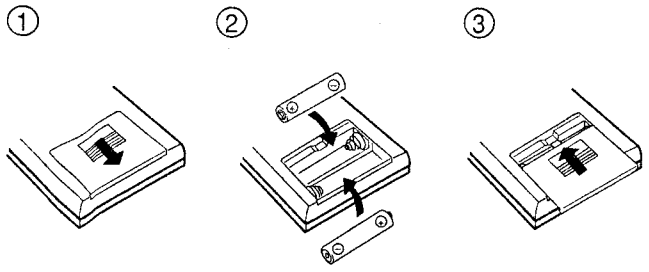
The keys which have the same names and marks are identical to the buttons on the cassette deck.

BATTERY INSTALLATION

① Press the lid's locking tab down and, at the same time, pull out the battery compartment lid in the direction of the arrow.

② Install the batteries (size "AAA", R03) with correct polarities. Follow the diagram in the compartment.

③ Position the bottom portion of the compartment lid in place, and push the top portion of the lid in until it clicks into place.



BATTERY REPLACEMENT

When the operating distance of the remote control noticeably decreases, the batteries are exhausted. Immediately replace the batteries with new ones.

- Do not use an old battery together with a new one.
- Install the same type of batteries at the same time. Do not use different kinds of batteries (carbon, alkaline, Ni-Cad, etc.) at the same time even though they are the same shape.
- There are two kinds of batteries available in the market: rechargeable and non-rechargeable. Read the caution labels on the battery carefully.

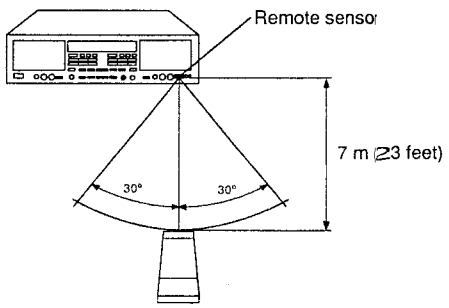
BATTERY SAFETY

Incorrect use of batteries can cause leakage or explosion. Proper handling and use of batteries is as follows:

- When the remote control will not be used for an extended period of time, remove the batteries.
- Never disassemble, heat or throw a battery into a fire.
- Do not connect (short circuit) the (+) and (–) poles of a battery with a piece of wire, metal, etc. In case of leakage, thoroughly wipe off all the electrolyte from the battery compartment and install new batteries.

REMOTE CONTROL OPERATION RANGE

The remote control transmitter uses infrared light to control the unit. Therefore, to function properly, there must be a clear, unobstructed path between the transmitter and the sensor on the deck. The normal operating range is about 7 meters (23 feet) and within 30 degrees perpendicular to the front panel.



TROUBLESHOOTING

If your cassette deck fails to operate normally, check the following table. It lists common operating errors and simple measures which you can take to correct the problem. If it cannot be corrected, or the symptom is not listed, disconnect the deck's power cord and contact your local YAMAHA dealer or authorized service center for help.

Fault	Cause	Cure
Tape doesn't move in recording or playback.	• Power plug not properly plugged in. • Cassette shell is warped or damaged.	• Reinsert plug properly. • Do not play damaged tapes.
REC/PAUSE button fails to function.	• No cassette tape loaded. • Protective tabs are broken off.	• Load a cassette tape. • Change tape or cover protective hole with cellophane tape.
Sounds become faint and sometimes inaudible.	• Head is dirty. • Head is magnetized. • Tape is damaged or of poor quality.	• Clean head. • Demagnetize head using head demagnetizer. • Change to a different tape.
Recorded sound is distorted.	• Tape is bad (stretched or deformed, etc.). • Cassette shell is warped. • Recording level is too high.	• Replace with a fresh tape. • A warped cassette shell cannot be fixed. Replace with another tape and test. • Check input level with signal level meter and use lower rec level when recording.
Tape is playing back, but no sound is heard.	• Faulty connection between deck and stereo amplifier/receiver.	• Check and secure connections.
Excessive noise.	• Head is dirty. • Head is magnetized. • Worn out or poor quality tape. • Connection(s) improperly made. • Affected by external electrical noise.	• Clean head. • Demagnetize head with head demagnetizer. • Change to better tape. • Check input and output connections and reinsert properly. • Move deck away from electrical appliances (TV, fluorescent light, electric blanket, etc.).
Excessive wow (wavering of the sound).	• Dirty capstan, pinch roller, etc., or poor tape. • Tape is wound unevenly.	• Clean capstan, pinch roller, or change to better tape. • Rewind tape.
Tape stops in the middle of recording or playback.	• Slack tape, or tape spillage wound around capstan.	• Insert pencil in hole in cassette shell and turn to take up slack.
Fails to record.	• REC LEVEL control is set too low. • Protective tabs are broken off.	• Adjust REC LEVEL control. • Change tape or cover protective hole with cellophane tape.
Search does not operate.	• Blank section is too short. • Recorded section has low-level portions. • Conversation, etc. has been recorded.	• Blank sections must be at least 4 seconds long.
High frequencies in the playback sound are emphasized and unpleasant to listen to, and noise level (hiss) is also high.	• Dolby NR-recorded tape is played back in OFF position.	• Play back in appropriate Dolby NR position.
Playback sound is muffled and high frequencies are inaudible.	• Normally-recorded tape is played back in Dolby NR. • Heads are dirty. • Heads are magnetized.	• Play back in OFF position. • Clean heads and carry out demagnetization with head demagnetizer.
When playing back tapes recorded on other decks, meter deflections are greater (smaller) than when recording.	• Basic levels are different for different cassette decks.	• This is not a fault.
The remote control transmitter cannot be operated.	• The batteries are exhausted. • The remote control transmitter is operated from an incorrect distance or angle. • The remote control sensor is lighted strongly.	• Replace batteries. • Operate it from less than 7 meters (about 20 ft.) and 30°. • Place the unit from the strong light.

SPECIFICATIONS

Type ..... Auto reverse 4-track, 2-channel recording and playback stereo twin cassette deck
Motors ..... DC servo motor x 2 (capstan)
DC motor x 2 (reel)
Heads ..... Recording/playback: Amorphous x 2
Erase: Double-gap Ferrite x 2
Rapid Transport ..... 90 sec. (C-60)
Wow and Flutter
WRMS 0.05%
W.Peak ..... ±0.08%
Signal-to-Noise Ratio
(Dolby NR off) ..... better than 58 dB
(Dolby B NR on) ..... better than 66 dB
(Dolby C NR on) ..... better than 74 dB
Frequency Response (–20 dB)
Type I/Normal ..... 20 ~ 17,000 Hz ±3 dB
Type II/High (CrO_2) ..... 20 ~ 19,000 Hz ±3 dB
Type IV/Metal ..... 20 ~ 20,000 Hz ±3 dB
Harmonic Distortion
Type I/Normal ..... less than 0.8%
Type II/High (CrO_2) ..... less than 0.8%
Type IV/Metal ..... less than 0.8%
Input Sensitivity/Impedance
Line ..... 120 mV/50 k-ohms
Output Level
Line ..... 570 mV/1 k-ohms
Phones ..... 2.0 mW/8 ohms
Channel Separation (3150 Hz) ..... 40 dB
Crosstalk (125 Hz) ..... 55 dB

GENERAL

Power Supply
U.S.A. and Canada model ..... 120 V, 60 Hz
Europe model ..... 230 V, 50 Hz
U.K. model and Australia model ..... 240 V, 50 Hz
Other model ..... 110/120/220/240 V, 50/60 Hz
Power Consumption ..... 28 W
(Power off: 6 W)
Dimensions (W x H x D) ..... 435 x 150 x 360 mm
(17-1/8" x 5-7/8" x 14-3/16")
Weight ..... 8.3 kg (18 lbs. 5 oz.)
Accessories
Remote control transmitter 1
Batteries 2
Audio cords 4

* Specifications subject to change without notice.